

## **ABSTRACT OF THE DISCLOSURE**

Electronic circuits couple energy storage devices, such as double layer capacitors or rechargeable battery cells, to a power supply output, thereby improving noise suppression and extending ride-through capability of the power supply. In a typical circuit, an energy storage device is coupled in series with a switch that controls the charging current into the energy storage device. The switch is controlled by a comparator that receives a signal related to the voltage level of the power supply. In some embodiments, the comparator also receives a feedback signal related to a charging current flowing into the energy storage device. The circuit is configured so that the switch limits the charging current to a predetermined current level, or does not allow the charging current to flow until the output voltage of the power supply reaches a predetermined voltage level.